

AMENDMENTS TO THE CLAIMS

1. (ORIGINAL) A method of controlling or modeling the process of densifying at least one porous substrate with pyrolytic carbon by chemical vapor infiltration, the process comprising: placing a load comprising one or more porous substrates to be densified in an oven; heating the substrate(s); admitting a reaction gas into the oven, the reaction gas containing at least one carbon-precursor hydrocarbon; adjusting the pressure in the oven so as to enable the gas to diffuse within the pores of the heated substrate(s) so as to form a deposit of pyrolytic carbon therein; and extracting effluent gas from the oven via an extraction pipe connected to an outlet from the oven;

the method being characterized by measuring the content in the effluent gas of at least one compound selected from allene, propene, and benzene; and, as a function of the measured content, by controlling the process by adjusting at least one parameter selected from: the flow rate of the reaction gas admitted into the oven, the flow rate of at least one component of the gas admitted into the oven, the transit time of the gas through the oven, the temperature to which the substrate(s) is/are heated, and the pressure that exists inside the oven.

2. (ORIGINAL) The method according to claim 1, characterized in that at least one parameter is adjusted so as to maintain the measured content at a value that is substantially constant.

3. (ORIGINAL) A method according to claim 1 or claim 2, characterized in that the content is measured in a duct in parallel with the extraction pipe.

4. (CURRENTLY AMENDED) A method according to ~~any of claims 1 to 3~~, characterized in that the content is measured by gas chromatography.

5. (CURRENTLY AMENDED) A method according to ~~anyone of claims 1 to 4~~, characterized in that the method is controlled by adjusting the flow rate of the reaction gas, or the flow rate of a component of the reaction gas as a function of the measured allene and/or propene content.

6. (CURRENTLY AMENDED) A method according to ~~anyone of claims 1 to 4~~, characterized in that the method is controlled by adjusting the temperature to which the substrate(s) is/are heated as a function of the measured benzene content.

7. (CURRENTLY AMENDED) A method according to ~~anyone of claims~~
~~1-to-6~~, characterized in that the reaction gas comprises at least one component selected from alkanes, alkynes, and alkenes.

8. (CURRENTLY AMENDED) A method according to ~~anyone of claims~~
~~1-to-7~~, characterized in that the reaction gas comprises a precursor which is selected from propane, butane, and ethane and which is diluted in methane.

9. (CURRENTLY AMENDED) A method according to ~~anyone of claims~~
~~1-to-8~~, characterized in that the selected parameter is adjusted within a predetermined range of values.

10. (CURRENTLY AMENDED) A method according to claim 9, characterized in that the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter.

11. (CURRENTLY AMENDED) A method according to ~~anyone of claims~~
~~1-to-10~~, characterized in that the variation in the or each adjusted parameter is stored so as to constitute a model that is reproducible during a subsequent process of densifying a load of the same type.

12. (CURRENTLY AMENDED) A method according to claims 10 and 11, characterized in that the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter and that the duration of the densification process is also stored.

13. (NEW) A method according to claim 3, characterized in that the content is measured by gas chromatography.

14. (NEW) A method according to claim 13, characterized in that the method is controlled by adjusting the flow rate of the reaction gas, or the flow rate of a component of the reaction gas as a function of the measured allene and/or propene content.

15. (NEW) A method according to claim 13, characterized in that the method is controlled by adjusting the temperature to which the substrate(s) is/are heated as a function of the measured benzene content.

16. (NEW) A method according to claim 15, characterized in that the reaction gas comprises at least one component selected from alkanes, alkynes, and alkenes.

17. (NEW) A method according to claim 16, characterized in that the reaction gas comprises a precursor which is selected from propane, butane, and ethane and which is diluted in methane.

18. (NEW) A method according to claim 17, characterized in that the selected parameter is adjusted within a predetermined range of values.

19. (NEW) A method according to claim 18, characterized in that the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter.

20. (NEW) A method according to claim 19, characterized in that the variation in the or each adjusted parameter is stored so as to constitute a model that is reproducible during a subsequent process of densifying a load of the same type.